

TERMINATION STRUCTURE OF DMOS DEVICE

ABSTRACT OF THE DISCLOSURE

In one embodiment of the invention, a semiconductor device set comprises at least one trench-typed MOSFET and a trench-typed termination structure. The trench-typed MOSFET has a trench profile and comprises a gate oxide layer in the trench profile, and a polysilicon layer on the gate oxide layer. The trench-typed termination structure has a trench profile and comprises an oxide layer in the trench profile. A termination polysilicon layer with discrete features separates the termination polysilicon layer. An isolation layer covers the termination polysilicon layer and filling the discrete features. The trench-typed MOSFET and the trench-typed termination structure may be formed on a DMOS device comprising an N⁺ silicon substrate, an N epitaxial layer on the N⁺ silicon substrate, and a P epitaxial layer on the N epitaxial layer. The trench profiles of the trench-typed MOSFET and of the trench-typed termination structure may penetrate through the P epitaxial layer into the N epitaxial layer.

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